

agricultural situation

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SOVIET STATISTICS UNDER STUDY



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The US-USSR Joint Committee on Cooperation in the Field of Agriculture has concluded its first year.

In a joint communique reviewing 1974 results, both sides cited the increased exchange of economic intelligence regarding each country's agriculture. As part of this exchange Bruce Graham, Deputy Administrator of the Statistical Reporting Service, spent a month during the fall of 1974 in the USSR as a member of a USDA team studying Soviet methods of data collection and crop forecasting.

Graham detailed some of his impressions of Soviet agricultural statistics in a recent interview.

U.S. need for Soviet statistics. Recent years have seen the USSR emerge as a major buyer of U.S. farm products—with their purchases from us reaching a high of \$954 million in fiscal 1973.

But trading with the USSR poses some serious problems because of the secrecy which shrouds Soviet data on agricultural production,

commodity stocks, and trade prospects.

No current or forecast data are available to aid trade experts in gaging the possible size of Soviet import needs for our farm products—or to assess the possible size of competing Soviet sales in other overseas markets.

A primary objective for the United States in signing the cooperation agreement in Moscow in November 1973 was to obtain better and more comprehensive data on Soviet agriculture. The Soviets are particularly interested in learning about U.S. agricultural technology, especially concerning livestock production. Their interest in economic data is related chiefly to long range planning.

Basic statistical differences. The profoundly different structure of agriculture in the USSR from farming in the United States makes for a number of fundamental differences in agricultural statistics programs.

In the Soviet Union, where the government plans gross production and then strives to provide the inputs which allow plan fulfillment, the major emphasis of the statistical program is on planning.



Current forecasts to aid farmers in planning the production and marketing of their products—which lie at the heart of the U.S. statistical program—are completely unnecessary in the USSR where prices are fixed by the government which is also the sole purchaser.

In fact, the Soviets maintain that current crop “forecasting” in the U.S. sense is simply not done in their country. The official statistical agency uses the current year’s planned production goal as its forecast until after the harvest is complete.

Although USSR statisticians avoid making current yield forecasts, we have learned their meteorologists and agricultural officials do prepare forecasts for internal use of the government only.

We in the United States hope eventually to share in whatever current forecasts are made in the USSR as we gain a better understanding of their system and reconcile terminology and methodology.

Accuracy stressed. In discussing their statistical system with the U.S. team, Soviet officials stressed uniformity and accuracy. They use a complete accounting system rather

than a sampling process. This eliminates sampling errors but requires a large and costly force of record keepers.

Reporting in the Soviet Union is mandatory, in contrast to the voluntary system in our country. Officials told us that they have the power to impose disciplinary measures to ensure that the numbers are reported accurately. In the USSR there is no problem of nonresponse.

The Soviet statistical system includes a number of checks and balances which contribute to accuracy. On the other hand, the ever present pressure on farmers and government officials to meet production goals raises questions on accuracy which haven’t been fully resolved for us.

Progress to date. Prior to the exchange program, the United States was receiving much less information about Soviet agriculture than it was getting from other governments. The signing of the cooperative agreement has helped improve that situation.

Specifically, the agreement calls for meetings—at least twice a year—to discuss agricultural pro-



AGRICULTURAL COMPARISONS



Resource Base:

3.3	Annual average employment in agriculture (million persons)	Approx. 45
4%	Farm share of total work force	Approx. one-third
2,800,000	Number of farms	Collective 31,600 State 15,744
400	Average land area per farm (acres)	Collective 15,500 State 49,200
	Cultivated land area (million acres)	555
60	Arable land with annual precipitation of 28 inches or more (percent of total)	1
11	Arable land area with average temperature of less than 41 F (percent of total)	60

Statistical Reporting Systems:

Sample of farmers	Scope of data collection	All farms
Voluntary	Requirements for reporting	Mandatory
Current inventories, past activities, planting and breeding intentions, yield forecasts	Data coverage	Current inventories, past activities
All data available to general public	Data availability	Some for internal government use

Farm Production, 1967-71 Averages:

206.6	All major grains combined (million metric tons)	169.5
118.8	Corn (million metric tons)	9.6
41.2	Wheat (million metric tons)	89.9
29.2	Soybeans (million metric tons)	.5
—	Sunflowerseed (million metric tons)	6.3
2.1	Cotton (million metric tons)	2.1
.8	Tobacco (million metric tons)	.2
14.1	Potatoes (million metric tons)	95.8
117.9	Cattle, Jan. 1, 1972 (million head)	102.4
51.0	Cows, Jan. 1, 1972 (million head)	41.2
63.0	Hogs, Jan. 1, 1972 (million head)	71.4
18.5	Sheep and lambs, Jan. 1, 1972 (million head)	139.9

Inputs

7.19	Nitrogen use (million metric tons)	4.60
4.34	Phosphate use (million metric tons)	2.21
3.79	Potash use (million metric tons)	2.57
66	Area covered per tractor (acres)	250
130	Area covered per grain combine (acres)	450

duction, consumption, and trade estimates; methods of forecasting crop and livestock production; and other work aimed at improving the knowledge of agricultural economics between the two countries.

To date, three such meetings have been held. At the first, held in Moscow during November 1973, the Soviets agreed to provide us regularly with historical data on farm production, harvested area and yields of crops, livestock numbers and product output, feed use, and output of certain processed foods. The first of this historical data has been received.

Last May, the U.S. and Soviet delegates held bilateral consultations on the supply and demand situations for the principal agricultural commodities in each country. The Soviets suggested that they could probably provide us with certain figures before they are published—for example, data on grain marketings, and consumption of grain, meat, and dairy products.

An exchange of information on the situation in agriculture in the United States and the Soviet Union during 1974 and the outlook for 1975

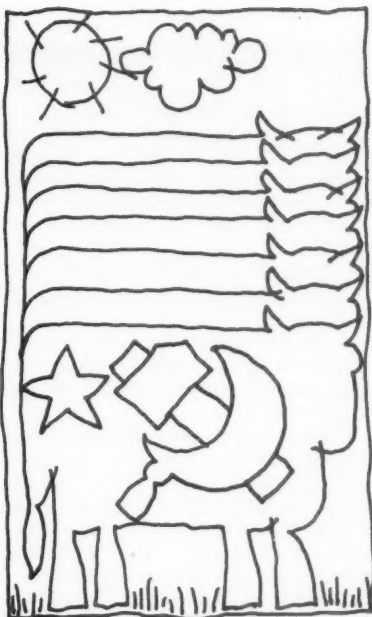
took place during the latest session held in early December 1974.

What the Russians want to know. The USSR has access to comprehensive U.S. data on current livestock inventories, grain stocks, and agricultural production as well as periodic situation and outlook reports published by USDA.

Soviet data needs from us are concentrated in the area of agricultural inputs and the structure of U.S. agriculture. Such data would be useful in their studies of production efficiency and planning.

The Soviets have asked for more information about the fixed production capital in agriculture; mechanization of various labor processes in plant production and animal husbandry; production costs of various agricultural products; agricultural production including feeds, straw, and seeds; composite power of all types of engines in agriculture; area of fruit and berry plantings; the number of agribusiness firms and conglomerates with agricultural holdings in the United States; electric power use in farming; and volume of capital investment in agriculture.





SOVIET PLANS FOR LIVESTOCK

In May 1957 Soviet Party Chief Khrushchev boasted that the USSR would overtake the United States in per capita meat production by 1960 or 1961. Today, a decade and a half after the scheduled date, Soviet meat production still stands at less than half the annual meat production of the United States.

But Soviet planners continue to think big about livestock—and these thoughts are likely to lead to larger imports of feed grains and oilseeds in the years ahead.

G. Stanley Brown, the U.S. agricultural attaché in Moscow from 1972 to 1973, recently analyzed what it might take for the Soviets to achieve their long-range consumption targets—which call for a 75-percent boost in per capita meat consumption over 1970 levels, a 40-percent boost in milk, and an 85-percent gain in eggs.

Brown stresses that in the most basic sense, the key to achievement of Soviet livestock goals is grain. He cites a USDA study that indicates the Soviet grain crop could swell by 90 million metric tons during 1971-85 as the USSR undertakes a massive program of grain fertilization.

But even with this kind of an output gain—which comes close to 50 percent—Brown feels the gap between feed production and feed needs is likely to widen.

The reasons: Russia's climate and geography make grain production extremely erratic; the overall quality of feed is poor, especially with respect to protein content; and Soviet livestock are inefficient converters of feed into food, whether measured in terms of output per unit of feed input or output per animal unit.

For example, the production of a pound of beef in the USSR requires 20 percent more feed than in this country; for pork the figure is 50 percent; for poultry meat the quantity is $2\frac{1}{2}$ times.

Livestock product output per animal unit in the USSR is only half to two-thirds that in the United States.

Much of this inefficiency is related directly to the low level of total feed intake. Feed consumption per animal unit in the USSR is only three-fourths that in this country. While this limitation can only be alleviated by increasing the availability of feed, much could be done to improve the efficiency of animals through better breeding, management, and nutrition. Efforts are underway in these directions—but results are slow.

Thus, Brown indicates that substantial Soviet imports of feed grains and oilseeds seem likely in the years ahead. With detente, the United States could easily be a major supplier but only if and when U.S. production allows.

POULTRY COSTS

Farmers' costs for producing broilers, turkeys, and market eggs reached their highest levels in many years during 1973 and 1974—and no relief is in sight for the first half of 1975, at least.

Feed prices—which have been the biggest factor in pushing up production bills—remain high. And continued increases are also likely for wage rates, for producing or buying chicks and poults, and for fuel and supplies.

The upturn in production costs marks the beginning of a new era for poultry and egg producers.

For many years, from the mid-1950's to the mid-1960's, production costs trended downward due to improvements in genetics, feeding, disease control, management, larger unit sizes, and mechanization.

The mid-1960's, production costs leveled off, as gains in production efficiency were just enough to offset increases in input costs. But since 1972, input costs have been rising far faster than efficiency increases. Hence the upward cost spiral.

The escalation in production costs means turning a profit in poultry and egg production will be a trickier

business than ever. A look at farmers' net returns since 1972 shows just how closely producers will have to figure their cost and returns. (See the table below.)

Egg producers had a pretty rough time in 1972 as a result of unfavorable market prices for eggs. Despite higher feed prices, 1973 was a better year due to strong egg prices. But 1974 included several months when prices were below costs.

For the broiler industry, net returns in 1973 were on the average better than in 1972. However, in 1974 prices were below costs much of the time.

For the turkey industry, 1972 was an in-between year and 1973 a good year, measured by net returns. But, like the other two industries, 1974 turned out badly.

USDA economists figure production costs for eggs, broilers, and turkeys will continue high for at least the first half of 1975 because of the feed situation and other input cost levels.

The outlook for net returns will depend on the level of output (which is being cut back) and on the effects of supplies and prices of competing protein foods on poultry and egg prices.

POULTRY AND EGG PRODUCTION COSTS

Item	Period	Feed costs	Total costs	Net returns	Feed costs as share of total costs
		(cents per dozen)			(percent)
Eggs	Year 1972	17.3	29.0	-2.8	59.7
	Year 1973	29.2	41.7	6.2	70.0
	Jan.-Oct. 1974	30.3	44.8	-0.9	67.6
		(cents per pound)			(percent)
Broilers	Year 1972	9.0	14.3	-0.1	62.9
	Year 1973	16.4	22.2	2.6	73.9
	Jan.-Oct. 1974	15.5	21.6	-2.1	71.8
		(cents per dozen)			(percent)
Turkeys (heavy young)	Year 1972	13.5	20.5	2.5	65.9
	Year 1973	25.6	33.1	13.9	77.3
	Jan.-Oct. 1974	21.8	30.0	-2.9	72.7

THE PUSH FOR HIGHER SOYBEAN YIELDS

The soybean industry anticipates world markets for 2 billion bushels of beans by 1985, nearly double present demand. But with average yields still stuck in the 25 to 30 bushel-an-acre range, plant scientists of USDA's Agricultural Research Service are involved in a real race against time to get production moving upwards.

Here are some of the more promising approaches being explored. *More efficient nitrogen utilization.* Scientists are seeking ways to increase the soybean's ability to use nutrients effectively throughout the entire growing season.

Under study are ways to make this nitrogen more available, either through fertilizer or through more efficient strains of bacteria called *Rhizobium* which take nitrogen from the air and convert it to a form that soybeans can use.

Better growth habits. An undesirable trait of soybean varieties grown in this country is a tendency to produce excessive vegetative growth. This extra growth increases plant height during the season, causing them to fall over (lodge), and brings about lower yields.

Soybean breeders are working to develop semidwarf varieties that will be resistant to lodging, diseases, and pests. At the same time, the researchers are trying to improve the soybean's use of sunlight in producing food energy. More efficient use of solar energy (soybeans are inefficient energy converters compared with plants like corn, sorghum, and sugarcane) could conceivably boost soybean yields by 50 percent.

Oil and protein content. Research on the soybean's metabolic process will provide new insights into how the plant produces protein and oil.

With this background, breeders may be able to develop new soybean varieties with the desired level of protein and oil.

Also a new method for determining protein, oil, and moisture content of soybeans is being perfected by USDA scientists. This could expand the scope of chemical research in breeding programs.

More plants per acre. Researchers are currently investigating the effectiveness of narrower row widths for increasing soybean output. Soybeans planted in 7-inch rows and not cultivated have a 10 to 15 percent yield advantage over conventional 30-inch rows. However, adequate weed control is essential for increasing yields with narrower rows.

Lower harvest losses. Today's harvest losses in major soybean-producing States averaged 8 to 10 percent of yields. Using high-speed photography, ARS scientists pinpointed the causes of harvesting losses and have redesigned the combine, reducing losses to less than 3 percent of the yield.

Disease control. An estimated 10 to 12 percent of the soybean crop is lost to disease each year.

Developing new varieties with resistance to several diseases and insects is a goal of plant breeders but necessary germ plasm has often been lacking.

As soon as over 2,000 soybean seed samples collected recently in Japan and Korea by genetics experts are fully cataloged, the Nation's soybean germ plasm resources may more than double. This will aid plant breeders in developing new varieties with resistance to multiple diseases.

Hybrid beans. USDA researchers have developed a soybean line pos-

sessing the male-sterile characteristic. With this breakthrough, literally hundreds of crossed seeds can be obtained at much lower costs.



This technique can hasten the development of soybean lines that may eliminate current yield and production barriers.

(Left) Plant geneticist studies vine like wild soybean ancestor grown from seed collected in the Orient. Hopefully these ancient plants will provide new varieties with genetic resistance to disease and insects.



(Above) A scientist grows and analyzes soybean tissues in radioactive solutions to learn how the plants produce protein and oil. This information will help in developing new soybean varieties with desired levels of protein and oil.



(Above) Planting soybeans in 7-inch uncultivated rows may increase production by 10 to 15 percent over

conventional 30-inch rows. The key to success is a satisfactory weed control system.

SURVEYSCOPE

To give our readers a clearer picture of the vast scope of SRS activities, *Agricultural Situation* presents a series of articles on special surveys undertaken in various States. While these are not national surveys, they are important to the agriculture in individual States.

"Once known as the land of cotton, Mississippi's beefed up livestock production over the past 20 years is helping to brand a new image on the Deep South," noted Ray Converse, recently retired Statistician in Charge of the Crop and Livestock Reporting Service in Jackson.

Mississippi's cash receipts from cattle and calves are up to nearly a fifth of total receipts, compared with only a tenth in 1950.

In 1973, about 617 million pounds of cattle and calves were marketed valued at \$259 million.

With farmers increasing their livestock production, Mississippi now boasts the largest number of beef cows of any State east of the Mississippi River and ranks 16th nationally for the total number of all cattle and calves," Converse stated.

Because of the growing importance of cattle raising, Converse's office last year conducted a special survey on marketing patterns for Mississippi beef.

The survey results, set for publication in February 1975, will provide information to help livestock



Mississippi's special cattle survey reveals important marketing trends...

producers, marketing firms, slaughter plants and government agencies make the best plans.

The survey was a cooperative project among the Statistical Reporting Service, the Mississippi State Department of Agriculture, and the Department of Agricultural Economics at Mississippi State University.

Begun last May, the survey included both mail questionnaires and follow-up personal interviews with a large number of Mississippi livestock producers to gather a multitude of information about the total livestock marketing situation.

Data collected during the survey included information about the methods of marketing cattle and calves: the number sold at auctions, direct to packing plants, at the farm through order buyers or dealers, direct to feedlot operators or buying stations, and special feeder calf sales.

Farmers were also asked why they sell their cattle at particular times and

the kinds of cattle marketed plus some general information on age and weight of cattle at time of sale, distance to market, and method of transportation.

Traditionally, Mississippi's livestock farmers have concentrated their efforts on feeder calf production.

Generally, calves are marketed in the fall at weaning weights (mostly from 300 to 500 pounds). Mississippi-produced calves move through various market channels to feedlot operations in the Southwest and Midwest for fattening to slaughter weights.

However, with today's dramatically different price and feed situation, things could change.

Now more animals may be carried to heavier weights on grass or may be nourished completely on grass instead of grain. And this could have a big impact on Ole Miss agriculture.

Favorable weather and good grazing make Mississippi a popular pastureland for cattle almost all year.



... about this rapidly growing sector of the State's agricultural industry.

Briefings

RECENT REPORTS BY USDA OF ECONOMIC, MARKETING, AND RESEARCH DEVELOPMENTS AFFECTING FARMERS.

CATTLE: GREAT EXPECTATIONS Another big rise in the cattle herd and the largest inventory ever of feeder cattle and cows will dominate the beef supply picture for 1975. USDA economists suggest the number of cattle slaughtered in 1975 may be up around 8 to 9% from 1974, with all of the increase in cow and nonfed steer and heifer slaughter as ranchers reassess the size of their cow herds and feeder cattle supplies bulge in response to reduced cattle feeding.

THE PRICE PICTURE Fed cattle prices for all of 1975 are projected to average near 1974 levels, in the \$42 to \$44 range, as higher prices during the first 6 months could be offset by lower prices during the second half. If prospects for this year's feed grain crop look good and if pastures hold up well during the summer, feeder cattle prices could stay strong all through the year. But poor pastures and high feed prices would push grass cattle prices back to late 1974 levels in the second half of 1975.

LESS MILK USDA economists expect milk production to run below year-earlier levels through the first half of 1975 as dairy farmers reduce feeding of high-cost grains and concentrates. Output later in the year will depend largely on 1975 crop conditions and subsequent feed prices, on milk prices, and on the cattle market. Slaughter cow prices are likely to stay relatively low throughout 1975, which will limit incentives for a sharp increase in herd culling.

COST-PRICE SQUEEZE TO CONTINUE The cost-price squeeze facing farmers will probably be with dairy farmers for several more months, at least. The milk-feed price ratio (pounds of feed equal in value to 1 pound of milk) dropped to 1.1 in August 1974, the lowest in 20 years. Although things have gotten slightly better since then, USDA economists expect the ratio to continue relatively unfavorable to heavy grain and concentrate feeding through midyear.

AND A WHEY WE GO! USDA researchers in Maryland have developed a new method of utilizing acid whey, a byproduct of soft cheese production (especially cottage cheese). Bitter to the taste and difficult to dehydrate, acid has heretofore posed a difficult disposal problem. Now the Maryland researchers have come up with a new process of using yeast to ferment acid whey. The process distills off ethyl alcohol and yields a nutritious liquid containing high-quality protein. Thus, acid whey can be converted into two highly salable products—an alcohol which has already been used in mixed drinks as a substitute for vodka and protein-containing liquid which can be dehydrated and used as a nutritious food.

FARMERS' FINANCES The financial condition of farm operators this year is expected to change little from 1974, according to USDA economists, although a modest increase in the number of operators having debt repayment problems is likely. Demand for operating and real estate loans will probably remain strong but demand for intermediate-term financing (for machinery, equipment, and livestock) is expected to slacken. The economists anticipate some decline in interest rates during first half 1975, though they note the reduction probably won't be more than ½ to 1 percentage point under first half 1974 interest levels.

DEBT DETAILS Net flows of loan funds to farmers are forecast at \$14 to \$17 billion during 1975, a \$3 to \$6 billion increase over 1974. Total debt outstanding January 1, 1976 is forecast by USDA economists to reach \$108 to \$111 billion. However, farmers' total assets are expected to rise to \$598 to \$608 billion—which would leave the debt-to-asset ratio next January 1 at 18%, about the same as the start of 1975.

WASTE NOT WASTE USDA soil scientists recently reported that crop yields nearly doubled as a result of applications of sewage sludge and sludge compost on fields before crops were planted, although some experiments showed that adverse results can be expected under certain conditions. According to the scientists, total corn yields (both grain and forage) of 2,765 pounds per acre resulted from applications of 71 tons of compost per acre. Yields were only half—1,427 pounds and acre—in plots treated with 108 tons of uncomposted sludge an acre. Water retention in the soil increased with greater applications of sludge and compost—and the highest application rates adversely affected soil aeration. Other tests with sludge and compost are being made with soybeans and vegetables by other scientists with USDA's Agricultural Research Service.

U.S. FARM EXPORT OUTLOOK High prices are expected to give the United States another excellent export year during fiscal 1975—pushing our sales value into the neighborhood of \$22 billion despite an expected drop of around 20% in export volume. About three-fourths of the export value will come from grains and feeds, where trade experts project a slight gain to \$11.2 billion, and oilseeds and products, which are expected to gain some \$600 million from last year to about \$5.8 billion.

WORLD AGRICULTURAL OUTPUT Despite a critical tightening in grain supplies and localized slumps in farm production in the United States and other areas, a preliminary estimate of world agricultural production by USDA economists places 1974 on a par with 1973. One factor offsetting reduced grain production in developed countries was increased livestock output. On an index basis, the developed countries in 1974 showed a slight decrease in total and per capita production, while the less developed countries showed a decline in per capita production but an increase in total farm output.

A FISHY STORY Although still a comparatively new type of agriculture "acquaculture" now covers an acreage equal to half of the acres devoted to farming in Delaware. A Soil Conservation Service summary of fish farming activity in the United States reveals that there were 2,372 commercial catfish enterprises covering 259,128 acres as of April 1974. There were 935 trout farms with 4, 214 acres of trout; 853 minnow farms with 48,899 acres of commercial minnow production; and 564 other fish farms with 31,045 acres in 34 other kinds of fish. About 3,740 enterprises offer fee-fishing recreation for interested fishermen.

A NEW U.S. INDUSTRY BY 1976? Food manufacturers are looking with interest at a newly developed chemical peeling process for water chestnuts, which just might give impetus to a domestic U.S. water chestnut industry. The water chestnut is a tropical plant that has been successfully paddy-cultivated in many coastal areas of the United States and produces an enormous yield of 16,000 to 40,000 pounds per acre. But the high cost of hand peeling corms has dampened commercial enthusiasm for the crop. Consequently, we import most of our water chestnut needs from Taiwan. Last year in-shipments totaled 18 million pounds, double those of 4 years earlier. USDA researchers indicate that domestically grown and processed water chestnuts could be available at a fraction of the current price for imported corms.

Statistical Barometer

Item	1972	1973	1974—latest available data
Farm Income:			
Volume of farm marketings (1967=100)	113	116	117
Cash receipts from farm marketings (\$bil.)	61.0	88.6	94.5
Realized gross farm income (\$bil.)	69.9	97.0	102.1
Production expenses (\$bil.)	52.4	64.7	76.5
Realized net farm income (\$bil.)	17.5	32.2	25.6
Income and Spending:			
Disposable personal income (\$bil.)	802.5	903.7	990.8
Expenditures for food (\$bil.)	123.4	143.6	157.5
Share of income spent for food (percent)	15.4	15.9	16.9
Prices:			
Consumer price index, all items (1967=100)	125	133	153
Food (1967=100)	124	141	166
Farm Food Market Basket:³			
Retail cost (1967=100)	121	142	165
Farm value (1967=100)	125	167	175
Farmer's share of retail cost (percent)	40	46	41
Agricultural Trade:			
Agricultural exports (\$bil.)	9.4	17.7	17.5
Agricultural imports (\$bil.)	6.5	8.4	8.5
Farm Production and Efficiency:			
Farm output, total (1967=100)	110	112	109
Livestock (1967=100)	108	105	109
Meat animals (1967=100)	110	109	116
Dairy products (1967=100)	102	98	97
Poultry and eggs (1967=100)	109	106	106
Crops (1967=100)	113	120	110
Feed grains (1967=100)	112	115	92
Hay and forage (1967=100)	105	109	102
Food grains (1967=100)	102	113	119
Sugar (1967=100)	128	116	106
Vegetables (1967=100)	101	102	103
Fruits and nuts (1967=100)	104	124	132
Cotton (1967=100)	187	174	162
Tobacco (1967=100)	88	89	100
Oil crops (1967=100)	131	156	130
Cropland used for crops (1967=100)	98	104	106
Crop production per acre (1967=100)	115	115	104

¹Annual rate, seasonally adjusted, third quarter.

²Average annual quantities per family and single person households bought by wage and clerical workers, 1960-61, based on Bureau of Labor Statistics figures.

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